

## **Frequently Asked Questions Teachers have about TPACK**

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### **What is TPACK?**

TPACK is a conceptual model that offers teachers a mental framework for thinking about the different knowledge domains related to effective teaching and the interplay of knowledge and skills required for effective technology integration. The word TPACK (sometimes referred to as TPCK) is an acronym that expresses this concept of the specialized knowledge required for technology savvy teachers. The three different professional knowledge domains—namely T - Technological Knowledge, P- Pedagogical Knowledge, and C- Content Knowledge—are essential in their own right for good teaching. TPACK describes the integration of these knowledge types which is essential for successful use of technology in classrooms. Each of the different knowledge domains is explained in greater detail in the sections that follow as is the concept of TPACK.

The idea of TPACK was developed by education professors at Michigan State University and has become a tool that informs the preparation of teachers to successfully implement technology in K-16 classrooms. The model has been gaining popularity in teacher education circles for the last 5 years but is only just beginning to inform the professional development of in-service teachers outside colleges and universities.

### **How can Teachers use TPACK?**

There are several ways teachers can use and benefit from knowing about the TPACK model.

First, the TPACK model can serve as a tool for analyzing a teacher's knowledge and making plans for his or her growth toward successful use of educational technology. Using the TPACK framework as a basis for a "knowledge inventory," a teacher can examine his or her knowledge related to individual knowledge domains and their integration. Then he or she can use the increased self-awareness that comes from this inventory to plan for growth experiences (i.e. classes, experiences, readings, etc.) in the areas determined most important.

Second, the TPACK model can provide teachers a language for discussing activities related to technology integration with one another. Teachers familiar with the TPACK model can communicate more effectively because they share the vocabulary, ideas, and concepts indicated in the TPACK model. These groups can work together more easily as they make plans for efforts to integrate technology in more purposeful and meaningful ways in their classroom. In addition, understanding the TPACK model can help teams of teachers plan professional development opportunities, create technology plans, and purchase technology equipment.

Third, the TPACK model gives teachers a mental framework for thinking about the complex ways their knowledge in different domains must work together to successfully plan and implement educational technologies. As teachers work to make learning more efficient, effective, and engaging knowledge of the TPACK model can help them consider which methods of implementation are most appropriate and more likely to be effective based on their instructional goals. It can also help them understand ways that existing efforts to integrate technology might be falling short of potential and improve them.

## **What are the different professional knowledge domains for teachers?**

**Pedagogical Knowledge (PK)** – the term pedagogy refers to the specialized knowledge required for effective instruction. Pedagogical knowledge then, within the context of classroom teaching, involves all understanding a teacher possesses that leads to effective instructional process—from understanding of the instructional planning process to knowledge of classroom management, instructional time use, and students’ psychological development.

**Content Knowledge (CK)** – this term refers to the knowledge teachers must have to effectively teach within a particular content area such as science, social studies or music. This knowledge includes, “knowledge of central facts, concepts, theories and procedures within a given field; knowledge of explanatory frameworks that organize and connect ideas; and knowledge of the rules of evidence and proof” (Shulman, 1986). In addition, content knowledge also refers to a teacher’s understanding of the nature of knowledge and methods of inquiry in a particular field.

**Pedagogical Content Knowledge (PCK)** – this specialized knowledge occurs at the intersection of Pedagogical Knowledge and Content Knowledge. It is that knowledge which informs a teacher’s decision making process about appropriate methods for teaching specific content in their subject area or discipline. It also refers to the specialized knowledge teachers develop about the organization of content within a discipline. For example, a Science teacher might use PCK to make decisions about the best way to teach the scientific method—opting for a hands-on experience over reading about and memorizing the process from a text.

**Technological Knowledge (TK)** – this term refers to knowledge teachers have about educational technologies that support classroom teaching and productivity—both high-tech and low-tech tools. This term also refers to the knowledge required to set up and operate this technology, communicate about such tools with others, and solve problems that might occur during its use.

**Technological Content Knowledge (TCK)** – this term refers to the understanding teachers develop about the way that technology supports understanding the content area that they teach. For example, in Science a tool like a microscope allows students to explore the crystals in table salt. The technology tool enables understanding of the subject matter through support for student discovery.

**Technological Pedagogical Knowledge (TPK)** – this term refers to the knowledge a teacher has about the technologies that exist for instruction, their capabilities, and their suitability for combining with instructional models and strategies. Teachers use TPK to make decisions about how technology might best support a particular instructional strategy, model, or activity type in a lesson. This type of knowledge also refers to a teacher’s understanding of productivity tools that might enhance their practice such as newsletter applications, online survey tools, attendance and grading.

**Technological Pedagogical Content Knowledge (TPCK)** – this term refers to the negotiation between and integration of knowledge a teacher possesses in different professional knowledge domains as he or she makes decisions about educational technology that affect their classroom practice. This idea suggests that true and effective technology integration is requires a foundational knowledge in all teaching domains and a specialized knowledge of their integration. TPCK involves knowing when and when not to use technology to support teaching and learning in the content areas as well as how to do so most effectively.